

Unit C - Sizing It Up

Overview

The focus of this unit shifts from earlier work with addition, subtraction and place value concepts to those concerning measurement. Students will discover the need for a standard unit of measurement as their attempts to measure without one become widely varied and confusing. Students are encouraged in a playful approach with inchworms, footworms, and yardworms to recognize connections and relationships between units of measure. They explore the effect that the size of the unit has on the corresponding measurement. This understanding lends itself to informal pictorial experience with ratios and proportional reasoning, laying groundwork for the multiplicative thinking required in third grade. With this understanding comes greater ability to justify a most appropriate tool and/or unit to use when measuring objects of various sizes. Because of this, students will also become more adept at making unit conversions.

21st Century Capacities: Synthesizing, Analyzing

Stage 1 - Desired Results

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| <p>ESTABLISHED GOALS/ STANDARDS</p> <p>MP5 Use appropriate tools strategically MP2 Reason abstractly and quantitatively MP6 Attend to precision</p> <p>CCSS.MATH.CONTENT.2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.¹</p> <p>CCSS.MATH.CONTENT.2.NBT.B.5 Fluently</p> | Transfer: | | |
| | <p><i>Students will be able to independently use their learning in new situations to...</i></p> <ol style="list-style-type: none"> 1. Read and create proportionally accurate representations and measurements in a variety of contexts. (Synthesizing) 2. Justify appropriate units and tools in which to measure lengths of objects. (Analyzing) 3. Measurements will vary depending on the size of the unit. | | |
| | Meaning: | | |
| | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <p>UNDERSTANDINGS: <i>Students will understand that:</i></p> <ol style="list-style-type: none"> 1. Standards of measurement evolved over time to develop benchmarks or standard units 2. The smaller the unit of measurement being used, the greater the number of units necessary to determine an object’s length, and vice versa. 3. Having a variety of units and tools allows us </td> <td style="width: 50%; border: none; vertical-align: top;"> <p>ESSENTIAL QUESTIONS: <i>Students will explore & address these recurring questions:</i></p> <ol style="list-style-type: none"> A. What math tools can I use to solve this problem? (MP5) B. How do I know that my answer is accurate? C. Did I use the most efficient strategy to solve the problem? D. How does what we measure affect how we </td> </tr> </table> | <p>UNDERSTANDINGS: <i>Students will understand that:</i></p> <ol style="list-style-type: none"> 1. Standards of measurement evolved over time to develop benchmarks or standard units 2. The smaller the unit of measurement being used, the greater the number of units necessary to determine an object’s length, and vice versa. 3. Having a variety of units and tools allows us | <p>ESSENTIAL QUESTIONS: <i>Students will explore & address these recurring questions:</i></p> <ol style="list-style-type: none"> A. What math tools can I use to solve this problem? (MP5) B. How do I know that my answer is accurate? C. Did I use the most efficient strategy to solve the problem? D. How does what we measure affect how we |
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Grade 2 Math Curriculum

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| <p>add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> | <p>to choose the most desirable or efficient for a given object.</p> <p>4. We can convert between units within a system of measurement (i.e. feet to inches)</p> | <p>measure?</p> <p>E. How can I find a measurement without actually measuring?</p> |
| Acquisition: | | |
| <p>CCSS.MATH.CONTENT.2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p>CCSS.MATH.CONTENT.2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</p> <p>CCSS.MATH.CONTENT.2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.</p> <p>CCSS.MATH.CONTENT.2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p>CCSS.MATH.CONTENT.2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</p> | <p><i>Students will know...</i></p> <ol style="list-style-type: none"> 1. Mechanics of measurement and link meaning to those mechanics 2. We can measure distances using various units 3. There are 12 inches in a foot; 3 feet in a yard 4. We measure with iterated units (no gaps or overlaps) 5. <u>Vocabulary</u>: estimate, inch, foot, length, measure, yard, circumference, ruler, distance, height, length, width, yardstick, multiple, pattern, row, array, equal, addends, column, equation, expression, hundreds grid, quadrant, section, sum, addition table, century, ones, tens, hundreds, centimeters, meters | <p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> 1. Measuring lengths of objects with precision; 2. Selecting an appropriate unit of measurement for the object being measured; 3. Converting measurements to inches, feet, and yards; 4. Using proportional reasoning to recognize relationships between objects (or pictures). |